

ABSTRACT

Methods and apparatus are disclosed for improving the sensitivity, angular resolution and range of motion detectors, occupancy sensors and similar systems. Specifically, an improved infrared input section is described which employs at least one additional lens, possibly segmented, before a lens array. This pre-focusing lens collects incident infrared radiation over the entire entrance aperture and partially focuses it onto one element of the lens array. The final lens array which focuses the radiation onto a detector may be an array of Fresnel lenses as in the prior art, an array of microlenses or a diffractive optics array. It is also possible to implement this system in such a way that moving infrared sources at any angular orientation will be detected as opposed to prior art systems in which only sources which cross the planes separating an array of angular sectors are detected.